Enrollment No…….

Bachelor of Engineering
Third Semester Main Examination, Dec-2020
Communication Skills [HU220]
Branch-CE/EX/EC/CSE/IT/ME

Time: 3:00 Hrs **Max Marks 70**

Note : Attempt any five questions. All questions carry equal marks.

Q.1 What do you mean by Communication? Describe it.

Q.2 Explain process of communication with diagram.

Q.3 What are upward and downward communication?

Q.4 Differentiate one way and two way communication.

Q.5 List out challenges in communication.

Q.6 Explain barriers to communication.

Q.7 Write a short note on Articles.

Q.8 What are parts of speech? Explain with suitable examples.

Enrollment No…….

Bachelor of Engineering
Third Semester Main Examination, Dec-2020
Digital circuit & Design [IT-222]
Branch - IT

Time: 3:00 Hrs **Max Marks 70**

Note : 1. Attempt any five questions out of eight.
2. Answer should be precise & to be point only.

Q.1 (a) What is Boolean algebra explain with suitable example, as well as defined of canonical SOP and POS form.
(b) Why gray code use in k-map and how come excess 3 is a self-complementing code and convert excess 3 to BCD code.

Q.2 (a) What is a basic difference between basic gate and universal gate? How many two input NAND gate are required to perform the action of a two input OR gate and its draw?
(b) What is Adder? Explain of ripple carry and subtractor.

Q.3 (a) What does edge triggered and level triggered mean? And also defined of edge triggered flip-flop.
(b) Explain of Johnson ring counter and synchronous ring counter

Q.4 (a) What is flip-flop? Explain all type of flip-flop with truth tables?
(b) Draw multiplexer and demultiplexer circuit and explain its application.

Q.5 (a) Briefly explain of RTL, DTL, TTL.
(b) What is difference between NMOS, PMOS and CMOS logic?

Q.6 (a) Explain of Schmitt trigger circuit.
(b) Explain of 7 segment LED display.

Q.7 (a) What is DAC?
(b) What is Multivibrator? How does a multivibrator circuit work?

Q.8 Write short notes on:
(i) Draw 8*1 MUX using 2×1 Mux
(ii) Explain shift left/right registers
(iii) Gray to binary code conversion
(iv) Explain encoder

Enrollment No……

Bachelor of Engineering
Third Semester Main Examination, Dec-2020
Object Oriented Programming & Methodology [IT-223]
Branch - IT

Time: 3:00 Hrs **Max Marks 70**

Note : 1. Attempt any five questions out of Eight.
2. All question carry equal marks.

Q.1 (a) What is Inline Functions? Write the advantage of inline functions.
(b) Give a example to explain returning by reference.

Q.2 Describe the Loop and Arrays in C++.

Q.3 Describe the concept constructor and destructor? Write the importance of constructor and destructor.

Q.4 (a) Explain public, private and protected access specifiers and show their visibility when they are inherited as public, private and protected?
(b) Define operator overloading? Explain how to overload unary operator and binary operator?

Q.5 Explain the following terms:
(i) New and Delete
(ii) Friend function
(iii) This pointer

Q6. What is exception handling? Explain types of exception handling and explain with suitable example.

Q.7 (a) What do you mean by streams classes and stream errors?
(b) Explain virtual function and write its purpose.

Q.8 Write a short notes:
(i) Disk file I/O with stream (ii) Static function
(iii) Runtime polymorphism (iv) Data hiding

Enrollment No……

Bachelor of Engineering
Third Semester Main Examination, Dec-2020
Discrete Structures [IT-224]
Branch-IT

Time: 3:00 Hrs **Max Marks 70**

Note : Attempt any five questions. All questions carry equal marks.

Q.1 (a) Describe Graph and its types?
(b) State and prove binomial theorem?

Q.2 (a) Define - Graph, Degree of a vertex, Even and odd vertex, Degree of Graph, Path.
(b) Define – (A) Ring, (B) Field

Q.3 (a) State and prove binomial theorem.
(b) State and prove recurrence relations.

Q.4 (a) Describe Finite State Machine.
(b)Define Lattice and describe types of lattice.

Q.5 (a) Represent on truth table: $\sim (p \wedge \sim q)$
(b) Let $G = \{1, -1, , -i\}$, which forms a group under multiplication and I be the group of all integers under addition, prove that the mapping $f : I \rightarrow G$ such that $f(x) = i^n \forall n \in I$ is a homomorphism.

Q.6 (a) Show that $\{1, -1, i, -i\}$ be the group with respect to multiplication.
(b) A relation R is defined on the set Z by "$a\ R\ b$ if $a - b$ is divisible by 5" for $a, b \in Z$. Examine if R is an equivalence relation on Z.

Q.7 (a) Expand $(2x - 5y)$ 7 with the help of binomial expansion.
(b) Define - (A) Set, (B) Countable Set, (C) Uncountable Set

Q.8 Short note on: (All define with example)
(i) Group
(ii) Semi group
(iii) Monoid
(iv) Abelian group.

Enrollment No……

Bachelor of Engineering
Third Semester Main Examination, Dec-2020
Mathematics-III [MA-220]
Branch-EE/EC/CS/IT

Time: 3:00 Hrs **Max Marks 70**

Note : Attempt any five questions.
All question carry equal marks.

Q.1 (a) State and prove Cauchy's theorem.
(b) Show that the function $e^x(cosy + isiny)$ is analytic and find its derivative.

Q.2 (a) Using Cauchy's integral formula prove that : $\int_c^3 \frac{e^{2z}}{(z+1)^4} dz = \frac{8\pi e^{-2}}{3} i$, where C is the circle $|z| = 3$.
(b) Find the imaginary part of the analytic function whose real part is $x^3 - 3xy^2 + 3x^2 - 3y^2$.

Q.3 (a) Find the real root of the equations $x^3 - 9x + 1 = 0$ by the method of false position.
(b) Apply Newton Raphson method to solve $3x = cosx + 1$.

Q.4 (a) Using Newton's forward Interpolation formula, find the value of $f(1.6)$,if

x:	1	1.4	1.8	2.2
y:	3.49	4.82	5.96	6.5

(b) Solve the following system by Gauss elimination method

$$6x_1 + 3x_2 + 2x_3 = 6$$
$$6x_1 + 4x_2 + 3x_3 = 0$$
$$20x_1 + 15x_2 + 12x_3 = 0$$

Q.5 (a) Apply Lagrange's formula to find the value of x when f(x) = 0 given that

x:	30	34	38	42
$f(x)$:	−30	−13	3	18

(b) Solve initial value problem $\frac{dy}{dx} = 1 + xy^2$, $y(0)$=1 for $x = 0.4, 0.5$ by using Milne's method when it is given that

x:	0.1	0.2	0.3
y:	1.105	1.223	1.355

Q.6 (a) Solve the equation $\frac{dy}{dx} = x + y$ with initial condition $y(0) = 1$ by Runge kutta rule from $x = 0$ to $x = 0.4$ with $h = 0.1$

(b) Evaluate $\int_{0.5}^{0.7} x^{1/2} e^{-x} dx$ approximately by using a suitable formula.

Q.7 (a) Solve the following by Euler's modified method, the equation $\frac{dy}{dx} + \log(x + y), y(0) = 2$ at $x = 1.2$ and 1.4 with $h = 0.2$
(b) Use picard's method to approximate y when $x = 0.2$ given

that $y = 1$ when $x = 0$ and $\frac{dy}{dx} = x - y$

Q.8 (a) Find the z Transform of Sinak, k7,0

(b) Solve the following by Gauss Seidel iteration Method

$$10x + y + z = 12$$

$$2x + 10y + z = 13$$

$$2x + 2y + 10z = 14$$